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Abstract

This is a case study of an important innovation in providing healthcare for the rural poor: the Yeshasvini Health Insurance Scheme for rural farmers and peasants in Karnataka, India. Arguably the world's largest health insurance scheme for the rural poor, the scheme commenced in 2003. Designed in ways that overcome several obstacles to providing health security for rural populations, the scheme covered, in its second year, about 2.2 million widely dispersed peasant farmers for surgical and outpatient care for a low annual premium of approximately US\$2. In this paper, we describe and evaluate the scheme in its first year of operation, and explore its potential to be a model for the developing world generally.

Keywords

health care, health insurance, India, poverty, Yeshasvini Health Insurance Scheme

Disciplines

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Health security for the rural poor? A case study of a health insurance scheme for rural farmers and peasants in India

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This is a case study of an important innovation in providing healthcare for the rural poor: the Yeshasvini Health Insurance Scheme for rural farmers and peasants in Karnataka, India. Arguably the world's largest health insurance scheme for the rural poor, the scheme commenced in 2003. Designed in ways that overcome several obstacles to providing health security for rural populations, the scheme covered, in its second year, about 2.2 million widely dispersed peasant farmers for surgical and outpatient care for a low annual premium of approximately US\$ 2. In this paper, we describe and evaluate the scheme in its first year of operation, and explore its potential to be a model for the developing world generally.

This is a case study of the Yeshasvini Health Insurance Scheme introduced in Karnataka (a state in India which has Bangalore as its capital) in 2003. In its first year of operation, the scheme covered 1.6 million rural farmers and peasants dispersed throughout Karnataka State. For a total premium payment of only Rs 7.50 a month or Rs 90 a year, participants are covered for all surgical interventions, major or minor, and for outpatient services at a network of private hospitals. The maximum coverage provided for a participant was Rs 200,000 (in July 2007, US\$ 1 = Rs 40.5 approx.; €1 = Rs 55.3 approx.). At the end of the first year of operation in June 2004, 9,039 surgeries had been performed, and 35,814 patients had received

outpatient consulting services. A significant proportion of total surgeries were classified as "major" (e.g. cardiac surgery) without which the patient would not have survived. The Yeshasvini scheme is arguably the world's largest health insurance scheme for the rural poor. Given its remarkable success in the first year of operation, the increased number of people covered in its second year (2.2 million)¹ and replications and extensions of the scheme in other parts of India,² the scheme is already becoming an important model of health insurance for disadvantaged populations within and outside of India.

The aim of this paper is to document and analyse the Yeshasvini case, as no prior studies about the scheme have been published.³ The authors spent two months in 2005 studying the operation of the scheme, including interviews with participants, hospitals and administrators. As the scheme breaks new ground on several different fronts in providing health insurance to large rural populations, we will describe its origins, the process of its establishment, the rationale for decisions taken along the way, the major problems and drawbacks that need to be addressed for the future, and the lessons for transferability to other populations within Karnataka, the rest of India and the world.

Several obstacles stand in the way of providing health insurance to the rural poor and informal sectors (van Ginneken, 1999). First, the rural and informal-sector populations do not constitute a homogeneous category, so it is difficult to organize them. Second, they are geographically dispersed. Third, there are no employers or it is difficult to identify employers. Fourth, providing health insurance to this section of the population is a daunting task, because rural and unorganized workers often need employment, income and social security simultaneously. Hence, the private sector has shown little interest in providing coverage for poor and rural populations, leaving it to non-governmental organizations (NGOs) and charitable institutions to take the lead.

Our review of several schemes (see Table 1) reveals a variety of problems that require solutions if we are to make progress on providing a modicum of health security to the world's poor. First, there is the problem of the restriction in scope. Most health insurance programmes for the rural poor are restricted to people living in a single, small, defined geographic area, or to a

1. In the third year the number of people subscribed reduced to 1.45 million, partly as a consequence of doubling the premium, as reported in an ILO case study written by Radermacher et al., 2005.

2. The scheme has been introduced in Gujerat and another municipality in Karnataka.

3. The ILO case study report acknowledges that a previous version of our paper is the first study of the scheme, and relies heavily on it (see Radermacher et al., 2005).

Table 1. Selected typical health insurance schemes for the poor in the informal sector

Name, location and starting time of the scheme	Annual premium (US\$)	Restricted scope (coverage of target population)	Restricted benefits (average coverage of medical cost)	Infrastructure and accessibility	Administrative agency	Sustainability (income/total expenses)
Welfare Funds, Kerala, India, 1969	Varied, 0.2-7.5 (per person)	Varied, 5.5-100 per cent	Reimbursement of a part of medical treatment costs	Local dispensaries and hospitals	Bureaucratic organization	Varied among different funds
ACCORD, Gudalur, Tamil Nadu, India, 1992	0.2 (per person)	934 (as of 1994)	Hospitalization (coverage: US\$ 37.5/year/family)	7 health centres, Gudalur Adivasi Hospital (GAH)	GAH, supported by ASHWINI (NGO)	(NA)
SEWA, Gujarat, India, 1992	1.65 (per person)	29,140 (as of 31 Dec. 2000)	In-patient plus maternity, cataracts, dentures and hearing aids (22 per cent of costs)	95 health centres, "barefoot doctors" service	NGO (SEWA)	Self-sustainable (NA)
NHHP, Kampala, Uganda, 1999	11.68 (per person)	625 (as of 30 June 2000)	In- and outpatient full coverage (90.7 per cent)	Nsambya Hospital (NH)	A semi-autonomous unit of NH	Not sustainable (38 per cent, Oct. 1999-June 2000)
UMASIDA, Dar-es-Salaam, Utd. Rep. Tanzania, 1995	5.22 (per person)	6,000 (approx.)	In- and outpatient full coverage (100 per cent)	Private clinics and state-run hospitals	NGO (community-based groups)	Not sustainable (50 per cent, after 6 years)
GRET, Cambodia, 1998	1.58 (per person)	711 (as of 30 June 2000)	Basic in-home, restricted for critical health risks (15.6 per cent)	GRET doctors, local hospitals	NGO (GRET)	Not sustainable (8 per cent, May 1999-April 2000)

Sources: Devadasan et al., 2004; Eswara Prasad, 1998; Gumber, 2002; Kannan, 2002; McCord, 2000a, 2000b, 2000c; McCord, Isem, and Hashemi, 2001; van Ginneken, 1999. NA = not available.

defined population (e.g. members of the Self Employed Women's Association, SEWA). The target populations in the schemes we reviewed in Table 1 were small, ranging from 625 to 29,140 people, consistent with Gumber's (2002) more comprehensive evaluation of various schemes. Second, there is the restricted-benefits problem, a consequence of low premiums. Most schemes focus heavily on primary healthcare (e.g. SEWA) or have strict ceilings on hospitalization costs, covering members for minor illnesses but not major healthcare interventions or hospital costs (see Table 1). Third, the administrative establishment underlying various schemes was generally weak, resulting in a variety of problems with regard to claims administration, escalating costs, poor healthcare quality and inefficient delivery of healthcare services. A recent review of 83 NGOs providing health insurance schemes for the informal sector suggests that issues of poor design and management affect their sustainability (Bennett, Creese and Monasch, 1998). Finally, most schemes were not able to provide access to large groups because they were not accompanied by, or a part of, an effective healthcare infrastructure of a network of clinics and hospitals, a necessary condition to provide healthcare for large dispersed rural populations. These are not the only problems in establishing health insurance for the rural and informal sectors, but they are the critical ones. However, despite the lack of adequate financing that limits the benefits of health insurance schemes for the rural poor, van Ginneken (1999) concludes after reviewing many such schemes around the world that contributory (self-financing) schemes are more likely to be sustaining as there is substantial evidence that the poor are prepared to pay for health insurance if it is available and affordable (Gumber and Kulkarni, 2000; Martin, Hulme and Rutherford, 1999).

The Yeshasvini scheme seems to have successfully overcome several of these obstacles, and hence a case study of its operation is highly relevant. We discuss below the origins of the scheme and highlight how it has solved the four problems listed above. Then we look at some representative data to get a "feel" for how the scheme operates in practice. Finally, we examine reasons for success and evaluate the potential transferability of this model to other populations within India, and across the world.

The Yeshasvini Health Insurance Scheme

The scheme originated in the mind of Dr. Devi Shetty, a cardiac surgeon who has pioneered the spread of telemedicine as well as low-cost cardiac operations in India. After a pilot study commissioned by his hospital⁴ it

4. The Narayana Hrudayalaya Hospital in Bangalore.

became clear to Dr. Shetty that the only solution to providing sophisticated healthcare to the rural poor was to create a really large health insurance scheme, where the law of large numbers would overcome the basic financing problem associated with the small schemes of the past. This was the basis for the design of the scheme. Below we provide details of how each of the critical problems encountered when attempting to introduce health security for the poor were addressed by this scheme.

*Solving the restricted-scope problem:
Mobilizing a large number of rural subscribers*

The first step in solving the restricted-scope problem was to identify the target population. How does one mobilize a million dispersed rural farmers and informal-sector workers in the state of Karnataka (an area of about 191,791 km²) with a population of 45 million of whom 70 per cent work in agriculture? Mobilization implied three major steps, i.e. communicating the scheme to the peasant farmers and getting them to subscribe, evolving a system to collect their premium payments, and issuing identity cards for participants. Rather than establish a separate administrative machinery for this purpose, Dr. Shetty looked for existing organizations or institutions which connected rural people. And it was important that everyone in that organization or institution became Yeshasvini members, otherwise there would be "adverse selection" problems, i.e., only sick people would join, limiting the subscriber base and potentially bankrupting the scheme.

The only institutions in Karnataka that connected rural farmers and rural peasants were cooperative societies. The cooperative movement has had a long history in Karnataka since 1905 and encompasses developmental sectors like textiles, sericulture, animal husbandry, fisheries, sugar, horticultural and agricultural credit, and marketing. Since all cooperatives (currently over 31,000) are required by law to be registered with the Department of Cooperatives, Dr. Shetty initiated discussions with the Principal Secretary of the Department of Cooperatives of Karnataka State. The Principal Secretary is assisted by a Registrar of Cooperative Societies, who supervises several deputy registrars in various regions. They in turn supervise district-level registrars, each of whom is assisted by deputy district registrars. Further, other government officials, such as the District Collector (the administrative head of each district), the District Health Officer and the District Surgeon could be involved through the Department of Cooperatives.

Dr. Shetty and his employees travelled around the state educating the various stakeholders (particularly deputy district registrars of cooperative societies) about the scheme. They also communicated with a large number

of individual cooperatives, educating the cooperative secretary about the potential benefits of the scheme. The mobilization process envisaged was that the secretary of each cooperative society would convince the members of the society to join the scheme.

However, the Department of Cooperatives, in its zeal, also got into the mobilization game. The Registrar of Cooperative Societies issued each of the deputy district registrars with a target membership to recruit. Those deputy district registrars, in turn, issued each cooperative secretary with a target for membership. Given this administrative fiat, each cooperative society secretary followed his/her own methods of signing up members. In some cases, he/she discussed extensively with each individual member and convinced them to sign up. In other cases, the secretary arbitrarily signed up everybody in the society, using their cooperative dues to fund the initial premium payment. In yet other cases, all members with outstanding society loans were automatically signed up by the society secretary. These multiple approaches resulted in the recruitment of 1.6 million people, spread over 27 out of Karnataka's 30 districts; districts in South Karnataka were better represented in terms of membership.

There are several unique advantages and disadvantages connected with the role played by the Karnataka government through the Department of Cooperatives. On the plus side, first, the government facilitated access to the cooperative societies. Second, the Department of Cooperatives provided a vehicle through which the scheme could be popularized and communicated to rural farmers, a key reason for the successful mobilization (Radermacher et al., 2005). Third, despite the communication effort that focused on the private self-financed nature of the scheme, since it was popularized by government agencies it came to be known as a "government" scheme, obtaining credibility in some quarters. Several people that we interviewed told us that they agreed to join only because it was a government scheme. Clearly then, being associated with the government provided the scheme with some degree of credibility.

On the other hand, there were significant negatives to government participation. Some subscribers were sceptical regarding the quality of care if it were provided by the government. Many rural farmers told us that they distrusted the government's ability to do anything and joined the scheme only because they could go to a private hospital to get treatment via a government-backed scheme. A major disadvantage associated with government participation was the method of mobilization (i.e. administrative fiats and targets issued by the Department of Cooperatives) that resulted in the negation of free choice, thus violating a cardinal principle in the design of voluntary insurance schemes. A second major disadvantage was that the Karna-

taka government insisted on paying a subsidy (a portion of the premium),⁵ thus violating a second cardinal principle, i.e. that of self-financing! What is clear, however, is that mobilization of large numbers of people would not have been possible without government involvement.

*Solving the restricted-benefits problem:
Designing the self-financing aspects*

Deciding on the best method of financing presented some key challenges, given the lack of knowledge of the health status of this population. The only known aspect was that poor people were willing to pay for health insurance if it was affordable. And research in Gujerat (another Indian state) had suggested that the rural poor would be willing to pay an annual premium in the range Rs 75-85. Based on this information, it was decided that the annual premium would be fixed at Rs 90 per person. Obviously, a scheme with such low premiums would require a large number of participants. And a gamble had to be taken regarding how many of them would require life-saving interventions. For instance, figures from the West indicated that 1-2 per cent of the population would require major surgeries. On the assumption that this percentage would be lower among this population (an assumption without any basis because there was little knowledge about the health status of the population), it was arbitrarily decided that at least 1 million members would be a "safe" starting point.

A central tenet of the design was that health insurance programmes for the masses had to be large but self-financed. However, given the government's interest in subsidizing the scheme, each subscriber paid only Rs 60 while the government provided Rs 30 per subscriber. Although initially it was decided that the government subsidy would end after year one, the government subsidy continued until year three.⁶

5. There are conflicting opinions with regard to the government's motivation here. Our interviews suggest that the government realized the populist potential of a scheme like this and wanted some degree of participation. Radermacher et al. (2005) suggest that the scheme asked the government to subsidize it (at least in the second year).

6. And in fact, in the second year, the government did not initially provide a subsidy (partly based on the results of the first year, where the scheme turned a profit). On the other hand, as the scheme became popular, the number of subscribers increased in the second year to 2.2 million, the premium was retained at Rs 60, and the scheme did not turn a profit. Hence, the government stepped in with a flat grant of Rs 3,500,000. In the third year, the scheme doubled the premium for each subscriber, i.e. from Rs 60 per person to Rs 120 per person. In the third year as well, the government made up the deficit with a flat grant of Rs 5,000,000. While the premium was increased for adults in the third year, it is still Rs 60 for unmarried children younger than 18 years. Thus, the average premium in the third year was expected to be Rs 100 (Radermacher et al., 2005).

Since about 1.6 million people joined in the first year, it was possible to think in expanded terms regarding coverage. Given that poor people could not afford to pay for hospitalization for both major and minor illnesses, it was decided that all charges associated with any surgical procedure would be covered. Thus, a person who needed a heart operation would not be asked to pay any charges for the variety of diagnostic tests that are required before the operation. In fact, other than transportation, the patient would not need to incur any expenses at all. It was also decided (arbitrarily, given the lack of knowledge of the health status of the population) that the ceiling on treatment would be Rs 200,000 per person, which is the highest ceiling provided by any health insurance scheme for rural populations in the world. In fact, many of the decisions regarding coverage (ceilings, type of operations to be covered), while arbitrary at best, were overly influenced by the confidence generated in enrolling in excess of a million people. Incidentally, during the second year (2004/05), 2.2 million members signed up.⁷

Surgical procedures covered by the scheme fall into eight categories (obstetrics and gynaecology; gastroenterology; endocrinology; ear, nose and throat; eye; orthopaedic; genito-urology; and general surgery: for details see Kuruvilla, Liu and Jacob, 2005) and prices are set for each procedure that the scheme would reimburse to the hospitals (we will discuss this reimbursement process aspect later in the paper). Over 1,700 different operations are covered. However, there are significant exclusions. Among them are implants including valves; mesh grafts; stents, nails, screws and joint replacement surgeries; liver transplants; and dental surgeries. The scheme does not cover follow-up investigations either (unless it can be proved that there was some negligence on the part of the hospital). For a more detailed list of exclusions, see Radermacher et al. (2005).

In addition to coverage for all surgical procedures, the scheme covers outpatient consulting at the network of hospitals. Thus, doctors' fees for outpatient services are fully covered, while the costs of investigations (diagnostics and X-rays) are discounted by 30 per cent.

We found on average that each rural farmer we interviewed went for outpatient services about three times a year. In Mandya district, for example, the average outpatient consultation fee was Rs 20 a visit. Thus, the cost of the subscribers' premium (Rs 60) would easily be recovered with three outpatient visits alone, apart from having free surgery and related costs. This was a significant "selling point" of the scheme. In other words, the law of large numbers made it possible for the scheme to cover all surgical costs as

7. The number of participants dropped to 1.45 million after the premium was doubled (Radermacher et al., 2005).

well as all outpatient costs, and subsidize the cost of investigations. The benefits provided, therefore, are superior to those provided by other schemes for the rural poor, although the question remains whether this coverage is still enough: very poor people cannot afford the costs of investigations such as X-rays, for example (investigations are covered if followed by surgery, but not otherwise).

*Solving the access problem:
Creating a healthcare infrastructure
through a network of hospitals*

Providing rural farmers with access to hospitals would require the active participation of the private sector, given that the government hospital network is, as is often the case elsewhere, inefficiently run and kleptocratic and, although it is nominally free, most patients have to pay in order to get a modicum of care. More importantly, government hospitals are underfunded, do not always have the required equipment, and do not attract enough doctors (who are usually not interested in working for the low government salaries). And government hospitals do not have a good reputation among poor people.

It was not easy to convince the private hospitals to be part of a new network, however, particularly because they had no means of estimating how much additional revenue participating in the network would bring. Nevertheless, given low capacity utilization (the average occupancy rate in Karnataka's hospitals was only 35 per cent and the utilization rate of operating theatres was even lower), about 30 hospitals agreed to participate and, once the scheme commenced and the number of patients grew, more hospitals came on board. By March 2004, when our evaluation commenced, about 92 hospitals were part of the network, and by June 2004, 118 hospitals were certified.⁸

A formal process was established for evaluating hospitals before they could join the network. Essentially, a hospital sends its application to the District Collector, the Chief Administrative Officer of the district. The District Collector, the District Cooperative Registrar, the District Health Officer and the District Surgeon visit the hospital. They then send a report to Family Health Plan Ltd., the scheme's administrator. The district FHPL coordinator visits the hospitals again, to ensure that they have the required infrastructure and care quality, but also to obtain hospitals' standard rates for various surgical interventions. Only hospitals with a specified level of infra-

8. The number of network hospitals increased to 150 in 2005 (Radermacher et al., 2005).

structure are allowed to be part of the network. Based on a comprehensive survey of rates charged by different hospitals in Karnataka, a rate sheet for various operations and treatments was developed. Tariffs for the most commonly performed diagnostic tests were also fixed.

As of March 2004, only district-level hospitals were part of the system. In terms of access, rural villagers have to travel a maximum distance of 100 km to get surgical care at a private district-level hospital. User data shows that the average distance travelled by patients is about 40 km. Now, *taluk* (below district level) hospitals want to join, but they will have to improve their infrastructure quite dramatically over the next few years to be eligible.

*Solving the administrative problem:
Professional administration processes
and third-party administrators*

The scheme is governed by the Yeshasvini Trust, which is composed of 11 board members, drawn from the medical community and the Department of Cooperatives. The government of India's Insurance Development Regulatory Authority (IRDA) mandates that insurance schemes must have a Third Party Administrator (TPA), who will handle the schemes and the claims process but will not be a part of the organization providing medical services. Although the IRDA does not specify such rules for self-financed schemes, the trust decided to appoint a well-established private firm — FHPL (Family Health Plan Ltd.), a division of Apollo hospital — as the TPA. FHPL, with over a decade of experience in administering medical health schemes, is the largest health insurance administrator in India. Moreover, FHPL is also the first TPA in India to conceptualize, design and implement a self-financed scheme. While FHPL devises procedures and systems for managing the scheme, a representative of the Yeshasvini Trust sits at FHPL offices to provide overall oversight. The total amount of fees paid to FHPL for managing the scheme is Rs 5,900,000,⁹ which translates into roughly 4 per cent of the total subscriptions to the scheme in the first year of operation.

When a doctor at a network hospital determines that a Yeshasvini patient requires surgery, that doctor asks FHPL to authorize it. The doctor sends FHPL a completed form, together with copies of the patient's ID card and society membership card. FHPL's resident doctor makes a decision to au-

9. There seem to be some discrepancies in the amounts paid to FHPL. Our data showed a payment of Rs 5,900,000 in year one (2003/04), while a later ILO study (Radermacher et al., 2005) suggests payments of Rs 7 million in the first year and Rs 4 million in the second and third years.

thorize the operation at the prescribed fee. This is communicated to the hospital. Thereafter the hospital may proceed with the surgery. This process is called "pre-authorization". Once the pre-authorization is issued, the network hospital can proceed with the surgery and then submit the claim to FHPL.

The process is fairly simple. From the patient's point of view, there is very little administrative hassle. From the hospital's point of view as well, it is relatively efficient, and with the Internet a lot can be done electronically. There are some problems, however. For instance, it is possible that a patient will shop at different hospitals, so that, for example, three pre-authorizations may be issued for the same operation. It is also possible that the two hospitals that have not done the operation could also send in fictitious claims (since they have the pre-authorization). This may not happen often, since the FHPL doctor is there to check and may remember having authorized a particular operation for a particular person — but a process of cancelling existing pre-authorizations once a claim is sent in by one hospital is still required.¹⁰

Results of the first year of operation

By the end of the first year of operation, a total of 9,039 surgeries had been completed, valued at a total of Rs 105.3 million. However, the actual number of pre-authorizations was higher at 10,214 (valued at Rs 119.4 million). The difference between the two numbers occurs because pre-authorizations are issued but the surgery does not take place by the end of the fiscal year.

From an accounting standpoint, the scheme turned a profit. The total premium paid by 1.6 million subscribers each paying Rs 60 a year, coupled with an annual government subsidy of Rs 30, was Rs 144 million. Subtracting the total value of the number of surgeries, which was Rs 119.4 million, and the administrative expenses paid to FHPL (Rs 5.9 million), the scheme generated a surplus of Rs 18.7 million,¹¹ which was carried forward to the second year of operation.¹² In addition, the number of free outpatient treatments done at various hospitals was large, a total of 35,814 occasions.

10. Detailed flowcharts on the process of pre-authorizations and claims are available on request from the authors.

11. This is a rough calculation. There were some additional administrative costs, and additional income from interest (premiums were banked or invested). After taking these into account, a more recent study (Radermacher et al., 2005) calculates a somewhat higher profit, i.e. Rs 32.3 million in year one.

12. Note that in the second and third years, the scheme reported a loss, which was made up via the government subsidy.

Table 2. *Distribution by specialty of cases in the Yeshasvini Health Insurance Scheme (July 2003-29 Feb. 2004)*

Cardiac surgery	541
Cardiology	587
Endocrinology	101
Ear, nose and throat	354
Gastroenterology	360
General surgery	1,741
Urology	595
Neurology	23
Obstetrics and gynaecology	1,805
Ophthalmology	530
Orthopaedics	699
Vascular	16
Total	7,352

We provide below some representative data on the operation of the scheme. These are a snapshot of monthly or weekly activity taken during February and March 2004. By March the scheme was into its ninth month of operation. Table 2 lists the pattern of surgeries up to the end of February.

As Table 2 suggests, by the end of February 2004, 7,352 pre-authorizations for surgery had been given. Hysterectomies (obstetrics and gynaecology) accounted for the largest proportion of surgeries (24.5 per cent), closely followed by general surgery (23 per cent). Cardiac surgery accounted for 7.35 per cent, similar to the rates in cardiology, urology and orthopaedics. Given what we know about the ability of the rural poor to pay for health-care, the scheme has been an unqualified success by the sole criterion of human lives saved. But that is not the only criterion, of course. Analysis of districtwide surgery data indicates wide take-up across almost all districts. Outpatient statistics for all network hospitals across the state show that, as expected, the lead hospitals in major districts (Bangalore, Mysore, Davanagere and Belgaum) account for the largest number of cases (for details see Kuruvilla, Liu and Jacob, 2005).

The data also provide some useful information about the nature of interventions that the rural population needs and the average cost of providing this care, both unknown when the scheme was started. The average cost per

surgical intervention was Rs 10,955,¹³ which was higher than envisaged but driven heavily by cardiac surgery (7.5 per cent of all interventions).

We also conducted detailed case studies of several patients and network hospitals. These are available from the authors directly on request (as they are too detailed to be reproduced here). In general the picture that emerged from these individual case studies was positive, with many patients stating that they would not be alive if not for the scheme (although just as many told us that they did not even know that they had been signed up for it). The evidence from the hospitals was also positive, most of them reporting a significant increase in gross revenues as a result of their participation in the network.

Discussion and evaluation

What have we learned after an examination of the first year of operation of the Yeshasvini Health Insurance Scheme in Karnataka? There are a number of issues to consider in terms of criteria by which one can judge its success, and a number of problems that need to be rectified.

From the perspective of providing coverage for life-saving operations for people who would not otherwise have been able to afford them, the scheme is clearly an unqualified success. It covers a significant percentage of the target population and has the potential to cover more. The rate of coverage is also very high (Rs 200,000 per person per year) in comparison with any similar schemes for this type of target population anywhere in the world. A clear indicator of success is the number of people benefiting in terms of operations and in terms of outpatient care.

Despite these successes, there is one significant drawback. Although the insurance scheme represents a major improvement over all kinds of existing health security schemes for poor people, it still does not provide comprehensive health security. It covers subscribers for outpatient care and all expenses connected with surgery, but it does not cover other expenses. The things that are not covered (diagnostic tests for non-surgery-related issues, and for medicines) continue to be a heavy burden on poor rural families, and many of them will continue to cause indebtedness. Given, however, that surgeries are generally required in life-threatening situations, the scheme provides a degree of health security for this population that was impossible before. Whether the scheme can cover in future what is not covered now remains an open question. To answer it, we would need better infor-

13. The ILO's study (Radermacher et al., 2005) reports a slightly different figure, Rs 11,650, but their calculations were based on a more complete dataset than we had access to.

mation regarding the health status of the target population, or at least enough data to develop more accurate actuarial assumptions. Continued operation of the scheme will provide, in time, better data regarding the health status of the population and also better data about the costs. Thus, at this point, the scheme breaks new ground in terms of offering surgical and outpatient coverage for poor populations to a degree never experienced before, but it could still possibly be improved.

There are several issues that raise serious questions about the long-term sustainability of the Yeshasvini Health Insurance Scheme. First, although it was designed as a self-financed scheme, the government of Karnataka is providing a subsidy. We detailed the process through which the government got involved, and the advantages of government participation, but we see the government's subsidy as threatening sustainability. For long-term sustainability, this must continue to be a strictly self-financed scheme. According to Radermacher et al. (2005), the scheme is likely to be financially self-sustaining from the fourth year onwards.

A more crucial problem for sustainability is the fact that not all of the subscribers exercised free choice in joining the scheme. Long-term sustainability requires free and informed choice. Clearly, there needs to be a massive education effort of the rural population (an extremely difficult job) but the government Cooperatives Department also needs to be educated about the importance of communication strategies. Simply giving the secretaries of cooperatives target enrolment figures is not the solution. Our interviews with patients suggest that some of them would not have joined, despite the benefits, had they known the financial commitment. On the other hand, many learned that they were enrolled only when they went for operations, and they were grateful. We did not find any support (based on our interviews) for the oft-repeated paternalistic argument that poor farmers and peasants do not know what is good for them and do not know how to evaluate such insurance schemes (a justification offered for the lack of free choice). Each of the farmers and peasants we interviewed was very clear about the costs and benefits of enrolling in the scheme.

Although we talked with the secretaries of many cooperatives, we are unable to estimate the number of people who may not have exercised free choice in joining the Yeshasvini scheme during the first year. Of the four patients in our case studies, two deliberately signed up while two did not know that they were members. We also received differing estimates from Yeshasvini Trust members as well as FHPL administrators.

There are some reasons to expect that the lack of free choice may not be as big a problem in future years. First, knowledge of the scheme is spreading in rural areas through word of mouth from existing patients, and through

the network of district hospitals. Second, the Department of Cooperatives and the Yeshasvini Trust are both intending to explore new forms of patient and subscriber education. Given the surplus in the fund after the first year of operation, this issue can and must be addressed. The fact that 2.2 million people signed up in year two (for a three-year period) is some evidence that the word is getting out. And of this number, at least 1.1 million were repeat enrollees. Not all of the increased numbers can be attributed to better communication, education and awareness though, as the Department of Cooperatives has been continuing to issue targets for its officers. However, the element of free choice is going to be a defining variable in the longer-term success of self-financed health insurance schemes for the poor.

The problem of free choice does not seem to be an issue in two variants of the Yeshasvini scheme in other parts of Karnataka. For the past year, 2006/07, Yeshasvini has been trying to provide health insurance to teachers in state schools, informal workers employed by the municipal corporation of Bangalore, and the entire rural population of Anekal Taluk. In all of these cases, the mobilization of potential subscribers to the scheme is taking a lot of time, as they have to go through an education process to convince them to join. The progress is thus slow. However, they have been very successful in organizing the population in Anekal Taluk. These new extensions overcome both the issue of free choice and the issue of government involvement that were problems in the scheme which we have discussed in this paper.

A further threat to long-term sustainability stems from the little that is known about the health status of the rural population, and the likelihood that they will use the scheme. Is the experience in the first year a relevant baseline for the number of surgeries that can be expected for subsequent years? Relatedly, are there reasons to suspect that the number of users will increase as more and more subscribers become aware that they have coverage? As we discovered, many subscribers did not know that they were covered. Would the knowledge that they are propel more of them to seek healthcare interventions? It is likely that it will. In which case, the scheme may not yield a surplus. Thus, an adequate information base regarding the health status of the target population and usage rates must be established. This will provide the scheme with some relevant data to make projections regarding usage rates, and in the calculation of the premium to be charged.¹⁴

14. In this context, it is interesting to note that that in the third year of the scheme (the 2005/06 cycle), the number of subscribers declined from 2.2 million to 1.45 million. Whether this decline was related to the doubling of the premium or whether more people were exercising "free choice" is still unknown.

The above issues are key to long-term sustainability. We noticed several short-run problems as well, many of which were already addressed during the second cycle. For instance, a number of administrative problems were noticed. These pertain to efficient administration, the design of identity cards, and the potential for fraud in pre-authorizations.¹⁵ Improvements in the day-to-day administration of the scheme, promoting efficiencies in the pre-authorization and claims processing, may lead to a reduction of transaction costs that could also positively affect the financial structure of the scheme.

A significant short-term problem is the need for education among subscribers about what exactly is covered and what is not. Many hospitals complained about the lack of awareness among subscribers regarding the limits of coverage, and many subscribers expected all medical treatment to be "free". As Radermacher et al. (2005) note:

Familiarity with insurance prior to enrolment seems to be virtually non-existent. Still many – probably most – insured members are not aware of insurance mechanisms and know only a few details about benefits, exclusions and claiming procedures. In a household survey conducted by the project "Strengthening Micro Health Insurance Units for the Poor in India", 55% of the interviewed insured households (N=364) did not even [have] a rough idea what insurance is or how it functions (uninsured (N=354)): 71%.

This is a significant teething problem, but one that can be solved with better communication and education. The threats to long-term sustainability identified earlier are the important issues from a design standpoint.

Transferability

Although the scheme is still a "work in progress", it is relevant to ask whether there is scope for transferability to other similar populations within India and outside. Answering this question requires an understanding of the features that contributed to the successful introduction of the scheme.

First, the role of the government was important in getting the scheme launched. Not all government departments would have been as responsive as the Cooperatives Department in Karnataka. In fact, other departments within the government were contacted and did not quite respond in the same manner. Second, the ability to obtain buy-in from the state government and the various private-sector hospitals was clearly related to the reputation of Dr. Devi Shetty, whose credibility is great given his record as a cardiac surgeon, philanthropist, educator and telemedicine innovator, and

15. Radermacher et al. (2005) identified similar problems.

for establishing a state-of-the-art general hospital in Karnataka. Without leadership from him, this scheme would not have got off the ground. Van Ginneken (1999) suggests that dependence on the input and charisma of one person or a group of people has been an important factor in the success of several health insurance schemes around the world. That seems to be true in this case as well.

A third important feature is the relatively extensive network of hospitals in Karnataka. We do not have data (at the moment) on the number and distribution of hospitals across and within states, so we do not know whether Karnataka's network is out of the ordinary. It certainly has a more extensive network than West Bengal. Perhaps this was due to the privatization initiatives in the education sector that Karnataka has been noted for. Karnataka has a large number of private medical and engineering colleges. Since each medical college must have a hospital that meets certain standards, this feature may be the primary factor responsible for the extensive network of private hospitals in the state. Although we do not have enough data, some evidence suggests that the number of medical colleges per unit of population is higher in Karnataka than in many other states. Thus, a necessary condition for the success of schemes like this is the existence or development of a healthcare infrastructure.

Conclusions and implications

Stepping back, the key story in this model is the law of large numbers being effectively used to provide a relatively high degree of health security to the poorest populations of the world. This is not a new story, to be sure. The most innovative aspect is the success in mobilizing these large numbers who are geographically dispersed. The primary drawbacks of the scheme are that the self-financing and free-choice principles have not yet been fully implemented. The main lesson here is that existing organizations that connect people must be drafted in as a means through which health security can be introduced. The transferability of schemes like this depends almost entirely on such organizations existing among the target population, and the existence of a reasonable healthcare infrastructure.

The implications are that there are three necessary preconditions for the creation of successful self-financed health insurance schemes for large, poor, rural and informal sector populations. The first is a system for the mobilization of the widely dispersed poor populations, which is the key problem. The second is the design of an administrative vehicle or system to register subscribers, collect premiums and issue identity cards. And the third is the existence of an adequate healthcare delivery infrastructure. The

Yeshasvini scheme has creatively solved the first two problems through the use of the government Department of Cooperatives, and has found a way to network the relatively well developed system of private hospitals in Karnataka into an effective machine for healthcare delivery.

From a public policy perspective, more attention needs to be paid to the first two preconditions. Clearly, the question of importance here is whether developing nations have the ability to create a "healthcare backbone", i.e., just as the Internet served as a key communication "backbone", there need to be parallels in the healthcare world to solve the administrative infrastructure problem. An interesting suggestion in this regard is for India's far-flung network of post offices to be used as part of this backbone, to register subscribers and collect their premiums (although it must be acknowledged that post offices in India are not modernized to take on the complex tasks of premium collection and issuing of identity cards). It is possible that addressing the first two preconditions requires diverse approaches in different localities. The third precondition, building a healthcare network, is a problem that can be solved: given a large enough subscriber base, it is possible that the healthcare infrastructure can be built. The more challenging issues are the first two preconditions, mobilizing a large subscriber base and finding ways to enrol them. But the Yeshasvini case demonstrates the importance of using the law of large numbers to design an affordable health security system for the poor. This is an instance, potentially, where India's large population, normally seen as a negative, can be a valuable resource for increasing social health.

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